

Appl. No. 10/605,248
Response Dated December 7, 2005
Reply to Office Action Dated September 28, 2005

Listing of Claims:

What is claimed is:

1. (Original) A downlink system, comprising:
 - at least one mud pump for pumping drilling fluid from a drilling fluid storage tank to a drilling system;
 - a standpipe in fluid communication with the mud pump and in fluid communication with the drilling system;
 - a return line in fluid communication with the drilling system for returning the drilling fluid to the drilling fluid storage tank; and
 - a drilling fluid modulator in fluid communication with at least one of the group consisting of the standpipe and the return line.
2. (Original) The downlink system of claim 1, wherein the drilling fluid modulator is disposed in-line with the standpipe.
3. (Original) The downlink system of claim 1, wherein the drilling fluid modulator is disposed in-line with the return line.
4. (Original) The downlink system of claim 1, wherein the drilling fluid modulator is disposed in a bypass line that is in fluid communication with the standpipe.
5. (Original) The downlink system of claim 4, wherein the bypass line is in fluid communication with the return line.
6. (Original) The downlink system of claim 4, wherein the bypass line is positioned to discharge drilling fluid into the drilling fluid storage tank.
7. (Original) The downlink system of claim 1, further comprising a flow restrictor.
8. (Original) The downlink system of claim 7, wherein the flow restrictor is disposed upstream from the drilling fluid modulator.

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9. (Original) The downlink system of claim 7, wherein the flow restrictor is disposed downstream from the drilling fluid modulator.

10. (Original) The downlink system of claim 7, wherein the flow restrictor is disposed in parallel with the drilling fluid modulator.

11. (Original) The downlink system of claim 1, further comprising a flow diverter.

12. (Previously Presented) The downlink system of claim 11, wherein the flow diverter is disposed upstream of the modulator.

13. (Original) The downlink system of claim 1, wherein the drilling fluid modulator is operatively coupled to an electronic control system.

14. (Original) The downlink system of claim 1, wherein the modulator is disposed parallel to a flow direction.

15. (Original) The downlink system of claim 1, wherein the modulator is disposed perpendicular to a flow direction.

16. – 31. (Cancelled)

32. (Previously Presented) A downlink system, comprising:

a pipe for passing a drilling fluid from a storage unit to a downhole drilling tool;

a drilling fluid pump operatively connected to the pipe, the drilling fluid pump having a plurality of pumping elements; and

a pump inefficiency controller operatively coupled to at least one of the plurality of pumping elements for selectively reducing the efficiency of the at least one of the plurality of pumping elements.

33. (Original) The downlink system of claim 32, wherein the pump inefficiency controller is operatively coupled to an intake valve of the at least one of the plurality of pumping elements.

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34. (Cancelled).

35. (Original) A downlink system, comprising:

at least one primary drilling fluid pump in fluid communication with a drilling fluid tank at an intake of the at least one drilling fluid pump and in fluid communication with a standpipe at a discharge of the at least one drilling fluid pump; and
a reciprocating downlink pump in fluid communication with the standpipe at a discharge of the reciprocating downlink pump.

36. (Original) The downlink system of claim 35, wherein downlink pump is in fluid communication with the standpipe at an intake of the reciprocating downlink pump.

37. (Original) The downlink system of claim 35, wherein drilling fluid passes in and out of the downlink pump through the discharge of the reciprocating downlink pump.

38. (Original) The downlink system of claim 35, wherein reciprocating downlink pump is in fluid communication with the drilling fluid tank at an intake of the reciprocating downlink pump.

39. (Original) The downlink system of claim 35, wherein reciprocating downlink pump comprises a diaphragm pump.

40. (Original) The downlink system of claim 35, further comprising a second reciprocating downlink.

41. (Cancelled).

42. (Original) A downlink system, comprising:

at least one primary drilling fluid pump in fluid communication with a drilling fluid tank at an intake of the at least one drilling fluid pump and in fluid communication with a standpipe at a discharge of the at least one drilling fluid pump; and
an electronic circuitry operatively coupled to the at least one primary drilling fluid pump and adapted to modulate a speed of the at least one primary drilling fluid pump.

43. (Cancelled).